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HEART DISEASE

A Brief Review of the Etiology and Incidence, and Possibilities of Preventing the Disease, Especially the Rheumatic Type

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Because it is a frequent cause of disability and death, heart disease is receiving a steadily increasing amount of attention looking to its possible curtailment. Some observers contend that, in addition to being the leading cause of death in the United States, heart disease is increasing in frequency. Others point out that the conception of increased mortality is based upon faulty premises. In any event there is common agreement that the number of deaths from the combination known as cardio-vascular-renal disease has reached sufficient magnitude to demand intensive study and concerted combative measures, at least insofar as such efforts may be practicable.

In order that the importance of preventing heart disease may be better comprehended, it is desirable that the extent of the problem be realized. While epidemiological and statistical studies are steadily adding to our knowledge of the conditions under which heart disease occurs, the prevention of the affection is undoubtedly much more complicated than the control of such communicable diseases as tuberculosis, diphtheria, and the like. Nevertheless it is the hope that, as additional information becomes available, effective methods may be found of forestalling some of the suffering and premature death from this relatively obscure malady, particularly among young persons.

Heart disease mortality in the United States.—In presenting a brief statistical summary of heart disease mortality it should be understood that much of the data is inadequate and at times even faulty. However, the figures which have been collected by various observers aid greatly in appreciating the extent and ramifications of this complicated problem. If the deaths registered as being due to heart disease are considered, there can be no doubt that the mortality has increased steadily in the United States. The salient features of heart disease mortality have been interestingly emphasized in a series of tables and charts prepared by Whitney for the American Heart Association.¹

The increase in heart disease mortality is shown in table 1, in which are presented the annual death rates per 100,000 population in the United States registration area from 1911 to 1930, both from

¹ Jessamine S. Whitney: Heart disease mortality statistics (United States registration area). American Heart Association, May 1927.

Other Diseases of the Heart (Census classification no. 90, alone) and from Circulatory Diseases Combined (Census classification nos. 87-90, inclusive). The same information is displayed graphically in chart 1. Many observers prefer to consider only the mortality due to Other Diseases of the Heart, contending that deaths from pericarditis, endocarditis, myocarditis, and angina pectoris should be examined apart. Census classification no. 90 includes approximately 89 percent of all deaths included in the general classification of heart disease. However, whether the one or the other classification is used

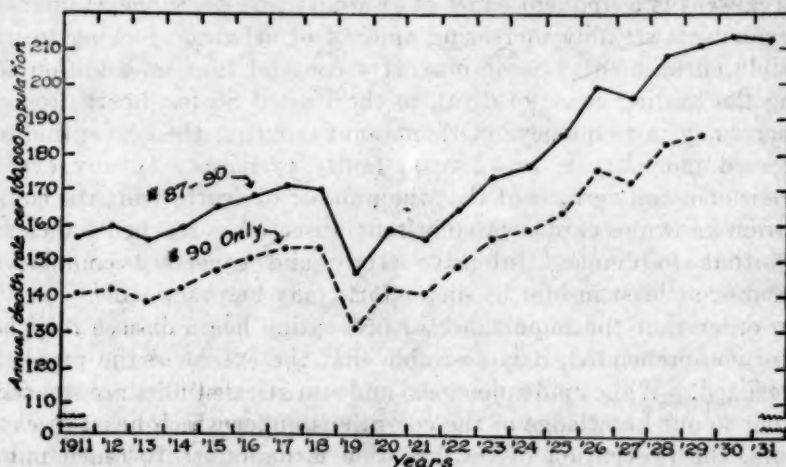


CHART 1.—Annual death rate per 100,000 population from "Other diseases of the heart" (Census classification no. 90, alone) and from "Circulatory diseases" combined (Census classification nos. 87-90, inclusive) in the United States expanding registration area, from 1911 to 1931

for statistical purposes the similarity in trend and the steady increase in mortality rates are unmistakable.

TABLE 1.—Annual death rates per 100,000 population from Other Diseases of the Heart (Census classification no. 90, alone) and from Circulatory Diseases combined (Census classification nos. 87-90, inclusive) in the United States expanding registration area, from 1911 to 1931

Year	Death rates per 100,000 population		Year	Death rates per 100,000 population	
	Other diseases of the heart (census classification no. 90)	Circulatory diseases combined (census classification nos. 87-90)		Other diseases of the heart (census classification no. 90)	Circulatory diseases combined (census classification nos. 87-90)
1911	140.9	157.1	1922	148.4	164.6
1912	142.6	159.9	1923	157.3	173.8
1913	138.6	155.8	1924	159.1	176.5
1914	141.8	160.7	1925	163.6	185.7
1915	147.6	165.7	1926	175.8	190.5
1916	150.7	168.7	1927	171.9	196.0
1917	153.8	171.7	1928	183.2	208.2
1918	153.4	170.1	1929	183.5	210.8
1919	131.0	146.7	1930		213.5
1920	141.9	159.1	1931		212.7
1921	140.9	150.3			

In 1900, when comparable annual mortality figures for the United States became available, the death rate for heart disease was 111.2 per 100,000 population. Following a continuous rise during the next 10 years the death rate from this disease reached 141.5 per 100,000 population in 1910. During the next decade there were marked fluctuations in the annual death rates. While fairly uniform at first, the rates reached high points in 1917 and 1918, exceeding 153.0 deaths per 100,000. Then followed, in 1919, 1920, and 1921, comparatively low rates, due in all probability to the fact that an excessive number of sufferers from heart disease expired during the influenza epidemic. Since 1922 the heart disease death rate has been rising steadily, year by year, exceeding at times the high rates preceding the influenza period. However, it may be that these rates, while indicating the mortality trends from deaths registered as having been due to heart disease, do not give a satisfactory picture. Owing to changes in United States census disease classifications, fads in medical diagnosis, and shifts of diagnosis from one category to another, it is likely that many of the deaths registered as being due to heart disease were properly chargeable to other conditions.

Heart disease mortality in New York City not increasing.—The Bolduans² have recently pointed out that heart disease is rarely a single entity and that statistics based on registered deaths from this disease alone are fallacious. They insist that deaths from apoplexy, arterial disease, and senility also be taken into account. While admitting the importance of heart disease as a public health problem, they regard it as merely a portion of a much larger question, namely, the prevention of the symptom complex which they term "cardio-arterio-renal" disease. So far as New York City is concerned, the Bolduans fail to find any evidence of an increase in the real death rates from heart disease. Even in the higher age groups the specific death rates have declined since the beginning of the century. The suggested statistical procedure might with advantage be applied in other communities, lest a single phase rather than the complicated whole problem receive undue emphasis.

However, when the United States registration area as a whole is considered, the successive addition of mortality rates of cerebral hemorrhage, acute heart disease, arterial diseases, nephritis, and senility (plotting on a semilogarithmic scale according to the procedure outlined by the Bolduans) to those of chronic heart disease shows that the combined death rates are steadily and markedly increasing. Moreover, to "other diseases of the heart" (census classification no. 90) may be ascribed the principal cause of the increased mortality.

² C. F. Bolduan and N. W. Bolduan: Is the appalling increase in heart disease real? *Jour. Preventive Med.*, 6:4, 321, July 1932.

Geographical variations in heart disease mortality.—Of the numerous studies that have been made of the mortality from heart disease in various parts of the world, a few may be cited to show the lack of uniform distribution. Thus, in Japan the rate is low. In Germany, the death rate from heart disease in 1923, 175 per 100,000, was approximately the same as that in the United States. The mortality rates are usually higher in cities than in either rural sections or the United States registration area as a whole. The same observation applies to Berlin and London in respect to Germany and England, respectively. In England and Wales the mortality from heart disease is said by Young³ to be higher in counties near the sea. The New York City death rate is not far removed from the median. However, Berlin, London, and New Orleans, all show higher rates.

In the United States, the Southern and Mountain States have distinctly lower rates than do the Pacific, New England, and Middle Atlantic States. Viko⁴ has pointed out that the heart disease mortality rates in Utah, Idaho, and Wyoming are relatively low when compared with other States. The instances cited evidence the wide geographical variations in heart disease mortality.

Incidence of heart disease as disclosed by surveys.—The extent to which heart disease is present in certain localities and groups of population has been determined to some extent by special surveys. Thus, among 2,510,791 men examined in the United States draft of 1918 there were 85,143 men with valvular disease of the heart, a rate of 33.9 per 1,000. Among recruits in New York who were examined for service in the United States Army during 1926, heart disease prevailed to the extent of 15 per 1,000. Rejections of applicants for life insurance because of this malady are reported as ranging between 20 and 24.4 per 1,000. Approximately 20 cases of heart disease were found among each 1,000 industrial workers and food handlers in New York City. Among newsboys the heart disease incidence was 15 per 1,000. Surveys among the school children of New York City, Boston, and Cincinnati showed an average of 1 percent with heart disease. However, a survey of 17,974 school children in Florida, Illinois, and Missouri by the United States Public Health Service disclosed 3 percent with the disease.⁵ In the British Isles heart disease appears to be markedly more frequent among people engaged in industrial pursuits than among agriculturists.⁶ Apparently such a sharp distinction does not exist in the United States, though it is known that heart

³ M. Young: The geographical distribution of heart disease in England and Wales, and its relation to that of acute rheumatism. *Lancet*, ii, 590, 1925.

⁴ L. E. Viko: Heart disease in the Rocky Mountain region. *Am. Heart Jour.*, 8:2, p. 264, December 1930.

⁵ Tallaferrero Clark: Heart disease a public health problem. *Pub. Health Rep.*, 44: 41, p. 2463, Oct. 11, 1929.

⁶ The problem of rheumatic fever in children. Report of a special committee of the British Medical Association. *British Med. Jour.*, 2: p. 23, July 3, 1926.

disease is more frequently encountered in the northern than in the southern portion of the country. While many of the differences cited appear to be quite definite, it should be remembered that the examinations and estimates were made by many physicians possessing varying degrees of experience and skill in diagnosing cardiac abnormalities.

DePorte⁷ estimates that there are 300,000 cases of heart disease in New York State alone. This estimate is based upon the reports of 98,069 noncommunicable illnesses voluntarily made by physicians in New York. Among these illnesses 4 percent were ascribed to heart disease. From a consideration of the available morbidity statistics, Cohn⁸ believes that approximately 20 of each 1,000 adults in the United States have heart disease. The morbidity rate is probably

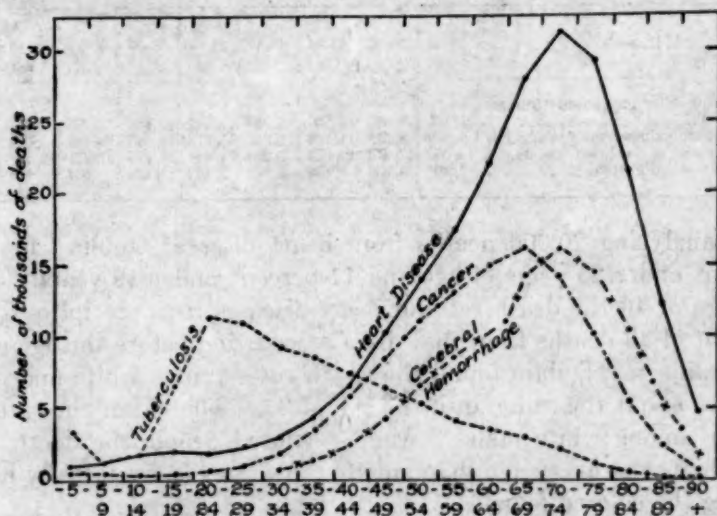


CHART 2.—Number of deaths, by age groups, from cancer, cerebral hemorrhage, heart disease, and tuberculosis, in the United States registration States (including District of Columbia) for the year 1929.

100 times as great as the mortality. The number of heart disease sufferers in the United States is often placed at 2,000,000, but Cohn feels that this is too high and suggests 682,500 as more nearly correct.

Deaths from heart disease are more likely to occur in the older age groups. This fact is shown in table 2, which also indicates the number of deaths, by age groups, in the registration States, from cancer, cerebral hemorrhage, and tuberculosis during the year 1929. These data are presented graphically in chart 2. Whereas the peak number of deaths from tuberculosis occurs in the age group 20 to 24 years, that of cancer is seen at 65 to 69 years, and the peak numbers in

⁷ J. V. DePorte: Heart disease in the State of New York; A statistical review of mortality and morbidity. *Am. Heart Jour.*, 5: 5, p. 652, June 1930.

⁸ Alfred E. Cohn: Heart disease from the point of view of the public health. *Am. Heart Jour.*, 2: 3, p. 275, February 1927.

cerebral hemorrhage and heart disease deaths occur at 70 to 74. It will be noted that the numbers of deaths from cancer, cerebral hemorrhage, and tuberculosis are notably fewer than are those from heart disease.

TABLE 2.—*Number of deaths, by age groups, from cancer, cerebral hemorrhage, heart disease, and tuberculosis, in the registration States (including the District of Columbia) during the year 1929*

Disease	Under 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Cancer and other malignant tumors, nos. 43-49.....	385	206	235	390	538	974	1,827	3,488	5,804	8,390
Cerebral hemorrhage, nos. 74a and 74b.....	261	104	93	170	272	397	654	1,357	2,584	4,346
Other diseases of the heart, no. 90.....	838	919	1,452	1,697	1,835	2,264	2,974	4,470	6,526	10,345
Tuberculosis (all forms).....	3,392	1,226	1,529	6,464	11,335	10,872	9,132	8,493	7,353	6,399

Disease	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90 and over
Cancer and other malignant tumors, nos. 43-49.....	11,139	13,062	14,900	15,920	14,349	10,148	5,565	2,427	673
Cerebral hemorrhage, nos. 74a and 74b.....	6,562	8,518	11,103	14,241	15,872	14,548	10,486	5,034	1,769
Other diseases of the heart, no. 90.....	14,060	17,373	22,064	27,980	31,314	29,126	21,374	12,101	4,780
Tuberculosis (all forms).....	5,404	4,338	3,539	2,073	2,162	1,328	828	171	45

In analyzing 20,000 deaths from heart disease, Dublin^{*} found 8 percent under 25 years of age and 17 percent under 49 years. After the age of 40 the death rate for heart diseases rises precipitously, 68 percent of all deaths from that disease occurring before the age of 65. Regarding sex, Dublin found the death rates among white males and females about the same until the age of 35. Thereafter the rate was higher among white males. Among colored people the death rates were higher at every age than among the whites and especially higher among the colored females.

Comparison of heart disease with certain other maladies.—Heart disease differs from tuberculosis and other diseases of bacterial origin in that it is not due to a single cause. Thus the malady may be the result of rheumatic infection, syphilis, arterial degeneration, or renal disease. However, it is likely that arterial decay and cardiac degeneration are not definite diseases but rather an accompaniment of the aging process. Therefore, it may be necessary to make a distinction between the decrepitude of old age, which is a normal and natural biological process, and the diseases of old age. About two fifths of all deaths from heart disease occur after the age of 70, when little can be done except to follow the rules governing the hygiene of old age.

When graphs depicting the annual death rates from infectious diseases are contrasted with those from heart disease it is seen that

^{*} Louis I. Dublin: Statistical aspects of the problem of organic heart disease. *Am. Heart Jour.*, 1: 3, p. 359, February 1929.

they move in opposite directions, the former having fallen while the latter have risen with age. However, the curves are not uniformly smooth, for at times changes in direction have occurred. After the infectious disease curve begins to fall, there is a marked delay before the heart disease mortality curve begins to rise. The delayed rise may be explained by the fact that persons who escaped death from communicable disease later became victims of another malady, heart disease. The increased death rate from diseases of the heart after the age of 40 supports this view.

During the 20-year period from 1900 to 1920 the death rates from pulmonary tuberculosis fell steadily while those from heart disease rose. The pneumonia death rate has not approached that of heart disease since 1910. Cohn maintains that, while the cancer death rate is increasing, the control of this disease is a relatively small problem compared with that of reducing heart disease mortality.

Causes of heart disease.—It has already been pointed out that heart disease, unlike affections due to a single, definite, and specific organism, is really a complex condition resulting from any one of a variety of causes. The term heart disease is, therefore, unfortunate in that it fails to indicate the exact underlying cause, extent of structural damage, functional condition of the heart, or the degree of disability occasioned the sufferer. The American Heart Association¹⁰ has endeavored to supply this deficiency through a standard nomenclature. By means of appropriate terms it is now possible to describe more accurately a given case of heart disease and it is desirable that this be done uniformly and generally.

According to cause, between 85 and 90 percent of all cases of heart disease may be classified under 3 or 4 principal headings and in varying proportions, according to geographical location and population composition. In a group of 600 hospital patients with heart disease, Cabot¹¹ found that 93 percent fell in 4 principal classes, namely, rheumatic, 40.6 percent; syphilis, 12.3 percent; arteriosclerosis, 15.5 percent; and nephritis (often included by other observers under the preceding heading), 19.5 percent. This differentiation, made in 1914, marked a distinct advance in the classification of heart disease by causes. Dublin gives the etiology of 1,000 cases of heart disease as follows: Rheumatic fever, 25 percent; arteriosclerosis, 40 percent; syphilis, 10 percent; and unknown causes, about 10 percent.

According to the sections of the country from which reports are made, there are notable differences in the percentages of heart disease

¹⁰ Criteria for the classification and diagnosis of heart disease, by the Criteria Committee of the Heart Committee of the New York Tuberculosis and Health Association, Inc., approved by the American Heart Association, 1932.

¹¹ R. C. Cabot: The four common types of heart disease. *Jour. Am. Med. Assoc.*, 63: 1461, Oct. 24, 1914.

due to various causes. In the Pacific Northwest, for instance, Coffen¹² reports that hypertensive cardiovascular heart disease is the most frequent, amounting to 56 percent. Rheumatic heart disease, in his experience, shows a low incidence, 0.1 to 5.8 percent, while goiter causes a relatively high cardiovascular incidence, 6.1 percent.

In Washington, D.C., Gager and Dunn¹³ have presented the etiological factors in 1,200 cases of heart disease, equally divided between white and colored patients. The findings are shown in table 3.

TABLE 3.—*The causes of heart disease and percentages of each cause among 600 white and 600 colored patients in Washington, D.C.*

Cause	Percent among 600 white patients	Percent among 600 colored patients
Rheumatism.....	7.2	4.2
Syphilis.....	4.3	15.5
Thyroid.....	3.7	1.3
Hypertension.....	51.3	59.2
Arteriosclerosis.....	26.0	13.0
Endocarditis.....	5.7	5.2

The minor causes of heart disease, amounting to 10 or 15 percent of the aggregate, may be stated as follows:

1. Congenital defects and malformations.
2. Thyroid disease.
3. Acute infections, such as diphtheria.
4. Cardiac neuroses.
5. Trauma.
6. Undetermined causes.

In most of the statistics presented, it will be noted that rheumatic fever looms fairly large as a cause of heart disease. Moreover, this condition which, according to many observers, is a communicable affection and very similar in its behavior to well-known epidemic diseases, may be amenable to suitable control measures. Therefore, it is desirable that some of the outstanding features of rheumatic fever be considered.

Salient points concerning rheumatic fever.—In the absence of definite knowledge as to the character of the causative agent in rheumatic fever it is natural that many possible factors should be considered. Very significant is the possible relationship of rheumatic fever to the family of streptococcal infections. This resemblance is accentuated by bacteriological likenesses and clinical and epidemiological similar-

¹² T. Homer Coffen: Incidence of heart disease in the Pacific Northwest. *Am. Heart Jour.*, 5: 1, p. 99, October 1929.

¹³ Leslie T. Gager and W. L. Dunn: The etiological factors in 1,200 cases of heart disease in Washington, D.C. A study of etiological types and the factors of race, age, and sex. *Medical Annals of the District of Columbia*, 2: 5, p. 112, May 1933.

ities. When rheumatic fever is compared with scarlet fever, chorea, erysipelas, septicemia, and puerperal fever, the annual fluctuations in incidence are quite similar. Hirsch¹⁴ believes that "it deserves an assumed place among the acute infectious diseases."

While a streptococcus may be the immediate exciting cause of rheumatic fever, it is usually difficult to demonstrate the presence of such an organism. Consequently the strong suspicion must persist that certain predisposing factors play a large part in the causation of this disease. Rheumatic fever is essentially a disease of people in unfavorable economic circumstances. Insufficient food or food lacking in essentials may play a prominent part in producing the disease. It has been suggested that rheumatic fever may be a successor of rickets, which latter affection is due to an insufficient ingestion of vitamin D, and specifically to a lack of calcium.

Epidemiological studies have afforded considerable aid in understanding the peculiarities of rheumatic fever. Swift estimates the average rheumatic fever attack rate in the United States as 1.67, in contrast to 1.98 in Norway, 1.32 in England, and 1.45 in Germany. According to this calculation there are probably 175,000 cases of rheumatic fever in the United States. In German and Scandinavian hospitals between 2 and 5.5 percent of all admissions are due to rheumatic fever, with the proportion higher in the more northerly cities. In England between 7 and 11.5 percent of all hospital patients have rheumatic fever. The disease is rare in Arabia as compared with Southern Europe. In the United States rheumatic fever is more common in Boston than in New Orleans, Galveston, Oklahoma City, or Richmond. Occupying intermediate positions are Baltimore and St. Louis.

Rheumatic fever is preeminently a disease of childhood, the maximum incidence of the disease being reached before the age of 10 years. In a group of 500 children studied by Wilson, Lingg, and Croxford¹⁵ it was found that the average age of onset of rheumatic infection was 7.3 years. In one half of those affected the onset occurred between the ages of 6 and 9 years. About the age of 12 the tendency to infection begins to diminish. According to these observers, the earlier the age of onset the greater is the number of recurrences within 1 year. During childhood rheumatic fever is more frequent among females.

There are certain facts concerning rheumatic fever which appear to be quite well established. Thus, the disease has a somewhat limited geographical distribution, being less frequent in the Tropics

¹⁴ August Hirsch: *Handbook of geographical and historical pathology* (Translated by C. Creighton, London, 1896).

¹⁵ Wilson, Lingg, and Croxford: Tonsillectomy in its relation to the prevention of heart disease. Part IV: Statistical studies bearing on problems in the classification of heart disease. *Am. Heart Jour.*, 4: 2, p. 197, December 1928.

but finding more favorable conditions for its propagation in temperate climates. More acute attacks of this disease occur in colder and wetter months. However, the period of maximum incidence varies according to locality.

There are considerable data which indicate that the incidence of rheumatic fever is higher in certain races, as for instance, the Italians and Irish. However, these conclusions are open to the criticism that environmental and hereditary influences have not received sufficient consideration in this connection.

From the evidence produced by a number of observers it is justifiable to conclude that rheumatic fever is likely to be transmitted within families. Thus, St. Lawrence¹⁶ records 200 instances of rheumatic fever in 50 families in which 480 persons were exposed. Of the latter number, 14.8 percent became ill with the same disease, a higher incidence than when tuberculosis contact is involved. Moreover, families of rheumatic fever patients are twice as likely to have another member of the family infected with the disease as families free from the disease. According to Cohn, between 8 and 10 percent of persons exposed to rheumatic fever in families acquire the disease, as against 1 or 2 percent in the population at large, and 2.95 percent in families of healthy controls.

Duration of rheumatic heart disease.—Because of the economic aspects of heart disease, as well as the suffering and incapacity occasioned by the illness, efforts have been made to determine the duration of an average case of rheumatic fever. By studying the progress of the disease from the beginning of infection to the death of many individuals it has been estimated that the average duration of the disease is about 17 years. Thus, from the onset of the rheumatic infection to the establishment of a chronic valvular disease from 1 to 8 years elapses, 4 years being the average. In about 7 years the stage of cardiac decompensation or failure sets in. From this point until death there is an average interval of about 4 years.

Sanatorium treatment for rheumatic fever patients.—Because of its chronicity and its similarity in many respects to tuberculosis, syphilis, and other infections, a number of convalescent homes have been established for the care of children suffering from rheumatic fever. There is evidence to show that numerous benefits accrue to the patients in these homes. It is claimed that the number of relapses among such patients are fewer than among children treated in their own homes. Other observers contend that flareups of rheumatic fever are more frequent when such patients are discharged to their own homes. Apparently sanatorium care is definitely helpful but unfortunately cannot reach sufficient numbers of the afflicted or be

¹⁶ W. St. Lawrence: The family association of cardiac disease, acute rheumatic fever and chorea: A study of 100 families. Jour. Am. Med. Assoc., 79, p. 2051. 1922.

continued for sufficient periods to cope with more than a fraction of those who have the disease. In order to evaluate the sanatorium treatment of rheumatic fever a careful comparison of the results must be made with a control group which has not had the advantage of such care.

The effect of residence in a subtropical climate upon patients having rheumatic fever has been tested by Coburn¹⁷ in Puerto Rico and by Jones¹⁸ in Florida. Groups of children suffering from rheumatic fever were transferred from New York and Boston to the places mentioned. Marked amelioration of symptoms accompanied the transfers, but relapses were frequent upon returning to the original environment. As such experiments can be applied only upon a limited scale, they are so far of interest chiefly as indications of marked climatic and geographical influences upon the rheumatic state. The benefits accruing from a change of location suggest, of course, the desirability of transferring such patients to the favorable localities whenever practicable.

Economic aspects of heart disease in general.—In addition to the suffering and premature death caused by heart disease, it is important that the economic aspects of the condition receive consideration. After studying the cost of hospital care, nursing visits, clinic care, convalescent care, and sickness costs, Emerson¹⁹ estimates that the care and treatment of heart disease patients in the United States costs approximately \$0.75 per capita per annum. Furthermore, he points out that the burden incident to the presence of heart disease falls most heavily upon the unskilled wage earner, persons of the lower economic class. This burden increases with each decade of life between the ages of 25 and 65.

Can heart disease be prevented?—As the incidence of heart disease varies somewhat in different sections of the United States, the problems of prevention are not identical. Theoretically, at least, several of the conditions responsible for heart disease are subject to public health control. Practically, however, the institution of effective control measures is fraught with much difficulty and discouragement. Taking syphilitic heart disease as an example, it is obvious that the elimination of syphilitic infection would result in the disappearance of heart disease due to this cause. However, despite intensive educational and other combative efforts, reduction in the number of syphilitic individuals has been comparatively slight. Nor does the control of heart disease due to the senescent or aging process hold forth much promise. However, observance of the rules of personal

¹⁷ Alvin F. Coburn: The factor of infection in the rheumatic state. Williams and Wilkins Company, Baltimore.

¹⁸ T. Duckett Jones and Edward F. Bland: The course and prognosis of rheumatic fever and chorea (Read before the Ninth Scientific Session of the American Heart Association, Milwaukee, June 13, 1933.)

¹⁹ Haven Emerson: Economic aspects of heart disease. Am. Heart Jour., 4; 3, p. 251, February 1929.

hygiene will do much in delaying the onset of senescence, adding to comfort and prolonging life when old age comes. As Cohn²⁰ has well said, "That the rate of so-called heart disease is high and is constantly mounting, is a condition in which those may take satisfaction who believe increased length of life for more persons is one of the great blessings of man. The rise may be alarming but it is not malign."

Inasmuch as studies so far conducted indicate that rheumatic fever is due to an infective agent, probably of streptococcal origin, aided and abetted by faulty environmental or dietary factors, it may be that by closing the avenues of infection it will be possible to prevent damage to the heart from this cause and subsequent physical impairment. It is for this reason that many exponents of preventive medicine have concentrated their efforts against heart disease by attempting the control of rheumatic fever.

Continued statistical, epidemiological, and clinical studies are required for the solution of the puzzling features associated with various types of heart disease. When adequate information has been assembled, it may be possible to concentrate preventive and ameliorative activities upon such forms of the disease as will show an encouraging response to combative effort.

ANNUAL PHYSICAL EXAMINATION STUDY AT THE ATLANTA FEDERAL PENITENTIARY

By W. F. OSSENFORT, *Passed Assistant Surgeon, United States Public Health Service*

An annual physical examination given with a view to the discovery of some disease in its early stages is based upon sound principles. In recent years the medical profession has made some effort in this direction by means of an educational program. The effectiveness of this propaganda as applied to a heterogeneous group has not been determined. In an effort to determine the results of a program of annual examinations in such a group, an experiment has been conducted at the United States Penitentiary in Atlanta, Ga.

On September 30, 1933, the prison population was 2,125. To conduct a reasonably thorough examination of the whole group was considered as demanding a disproportionately large amount of time and would mean a considerable amount of useless repetition in that a large portion of the population had received an examination on entrance within the preceding year, another equally large portion would receive examination on discharge within the coming year, and another group

²⁰ Alfred E. Cohn: Heart disease from the point of view of the public health. *Am. Heart Jour.*, 8: 4, p. 386, April 1927.

had been examined as a consequence of in-patient and out-patient treatment within the past six months. The remainder of the population represented the well group, on which there was no current medical data. Effort was concentrated upon this group of 424 men with a view to determine, first, their reaction toward annual examination and, second, the presence of a nonsymptomatic disease.

METHOD AND RESULTS

The men were called to the hospital in groups of 20 or more. The value of an annual check-up was explained to each group by various staff members and fellow prisoners. Examination was made optional, with the further explanation that each man was to make his own decision without prejudice being brought to bear for or against him. The examination consisted of the usual physical examination with subject stripped, and laboratory examinations of urine, blood smear, and hemoglobin.

Of the 424 men called, 112 accepted examination and 312 declined.

Examination of the 112 men revealed no major physical defects other than three cases of moderate nonsymptomatic arterial hypertension which had developed since entrance to the penitentiary. Blood pressures in these three cases were 190/125, 190/95, and 180/98.

Dental examination revealed only a negligible amount of oral sepsis, with general condition of mouth and teeth very good as compared with conditions usually found on entrance to the prison.

Laboratory examination of urine revealed no case of albumin, sugar, casts, or pus.

Blood smears were normal.

Hemoglobin determination by the Tallquist method showed two instances of 75 percent, 9 of 80 percent, 45 of 90 percent, 19 of 95 percent, and 12 of 100 percent.

COMMENT

The outstanding feature of this experiment was the attitude of indifference on the part of the prisoners toward an annual examination. This attitude was probably due to an inertia present prior to incarceration.

When 75 percent of individuals decline an annual examination offered to them without cost and without regard to time lost from duty, it would appear that an educational program has thus far not achieved results. Obviously the population must be appealed to either in a more persistent manner or from an entirely different standpoint. When we consider the large percentage of people that will harbor symptoms for a long period of time before consulting a physician, we can understand the reluctance to a check-up when no symptoms are present. A part of this may be due to the activities of quacks

and other factors, so that the patient feels that he cannot afford to take a chance on a doctor bill until he is driven to do so by pain, discomfort, or disability.

The medical situation in the penitentiary differs from that in the civilian population. Immediately following admission to the institution, the prisoner is given a complete physical and mental examination. At the same time he is advised to take such treatment as is indicated by the findings at the examination. The medical set-up consists of a well-equipped hospital and an out-patient department so located that it may be reached at any time during the day or night. The prisoner receives this out-patient care and hospitalization without cost to him. To be absent from duty is a personal advantage to him. Under such a system one would expect a request for medical care for any and all symptoms of disease. This, in fact, has been the experience at this station.

The search for nonsymptomatic disease was essentially fruitless in the group of 112 examined. One might conclude, then, that an annual examination of a group in which medical care is furnished without personal disadvantage to the patient is of little or no benefit from a public health standpoint. It would seem that an educational program designed to discover disease in its early stages would achieve better results if emphasis were placed upon an examination as soon as a symptom presented itself rather than upon the advisability of a periodic examination in the absence thereof. To emphasize the latter meets with too much inertia to make it of practical usefulness.

COURT DECISION ON PUBLIC HEALTH¹

Typhoid fever carrier, experiencing difficulty in earning a living, held not entitled to benefits under insurance policy as for total and permanent physical disability.—(New York Supreme Court, Appellate Division; *Gates v. The Prudential Insurance Company of America*; decided Mar. 14, 1934.) The defendant insurance company issued to the plaintiff a policy of insurance which contained the following provision:

If the insured shall become totally and permanently disabled, either physically or mentally, from any cause whatsoever, to such an extent that he (or she) is rendered wholly, continuously and permanently unable to engage in any occupation or perform any work for any kind of compensation of financial value during the remainder of his (or her) lifetime, and if such disability shall occur at any time after the payment of the first premium on this policy, while this policy is in full force and effect and the insured is less than 60 years of age, and before any nonforfeiture provision shall become operative, the company, upon receipt of due proof of such disability, will grant the following benefits:

¹ This abstract was prepared from a typewritten copy of the decision furnished by the New York State Department of Health.

Then there followed a provision for the payment to the insured of a monthly income. While the policy was in full force and prior to the plaintiff's reaching 60 and before any nonforfeiture provision became operative, the State health commissioner declared the plaintiff to be a typhoid fever carrier and permanently quarantined him from all connection with the production or sale of milk or any food product and excluded him from his own farm and required him to live elsewhere. Under statutory authority the State public health council had adopted regulations placing restrictions upon typhoid carriers.

In an action to recover benefits under the above-mentioned provisions of the policy the complaint alleged that the plaintiff had been forbidden to enter his own property on penalty of having his milk shut out from its only market and that, by reason thereof, he was unable to pursue his vocation of farming, either upon his own farm or as an employee elsewhere. It was further alleged that, for upwards of 3 years, the plaintiff had made diligent efforts to obtain employment in the limited fields from which he had not been officially excluded but had been unsuccessful because his condition was "such as to cause people to shun and fear him." The trial court dismissed the complaint upon the ground that it failed to state facts sufficient to constitute a cause of action, and an appeal was taken.

The appellate court stated that, for the purpose of the appeal, it must be assumed that the plaintiff's condition as a typhoid carrier was permanent and incurable and that he had not unreasonably refused a corrective or curative surgical operation. In describing a typhoid carrier the court said:

A carrier does not have typhoid fever; he is not ill; he simply harbors typhoid bacilli and excretes them; his strength is not impaired; his constitution is in no way weakened or undermined; he has the same capacity for labor which he always had; his mental powers are not affected; he suffers no pain or impairment; he would never know that he was a carrier if fecal or urine specimens were not submitted for laboratory examination and test. * * *

With regard to the plaintiff, the opinion stated that he would still be doing his former tasks had the authorities failed to discover his condition. "His inability to get work is not due to any physical impairment, but to the edict of the State, or to fear of infection on the part of others." It was pointed out that the plaintiff had conceded in his brief that "the carrier state in and of itself, if the carrier's duty to the public and the law of the State be disregarded, would not prevent him from milking cows and handling milk." "Physically", said the court, "he is fully able to continue the manual tasks associated with the dairy business." The conclusion reached was that the judgment of the court below should be affirmed, the opinion closing as follows:

In view of the fact that plaintiff's bodily strength has not been impaired and his ability to work has not been interfered with, it cannot, in our opinion, be

said that he is physically disabled within the meaning of the policy. He is prevented from doing certain work solely by the edict of the State. A man found guilty of a crime and sent to a penal institution might be unable to find work, but such inability could not be attributed to an absence of physical power to work. Plaintiff's disability is due to the statutes of this State. Statutory or legal disability is not covered by the policy. When public good with regard to the safety of others steps in and puts a limitation upon his activities, the disability resulting is social in its nature rather than physical. Plaintiff confuses the result with the cause. The result is that he has experienced some inability to earn a livelihood, but the cause is not physical impairment of his body.

PUBLIC HEALTH SERVICE PUBLICATIONS

A List of Publications Issued During the Period July-December 1933

There is printed herewith a list of publications of the United States Public Health Service issued during the period July-December 1933.

The most important articles that appear each week in the PUBLIC HEALTH REPORTS are reprinted in pamphlet form, making possible a wider and more economical distribution of information that is of especial value and interest to public-health workers and the general public.

All of the publications listed below except those marked with an asterisk (*) are available for free distribution and as long as the supply lasts may be obtained by addressing the Surgeon General, United States Public Health Service, Washington, D.C. Those publications marked with an asterisk are not available for free distribution but, unless stated to be "out of print", may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C., *at the prices noted*. (No remittances should be sent to the Public Health Service.)

Periodicals

Public Health Reports (weekly), July-December, vol. 48, nos. 27-52, pages 787 to 1583.

Venereal Disease Information (monthly), July-December, vol. XIV, nos. 7-12, pages 141 to 322. (Annual index I to VIII in December issue.)

Reprints from the Public Health Reports

- 1583. Rocky Mountain spotted fever: Susceptibility of the dog and sheep to the virus. By L. F. Badger. July 7, 1933. 5 pages.
- 1584. An outbreak of dermatitis among workers in a rubber manufacturing plant. By Louis Schwartz and Louis Tulipan. July 14, 1933. 6 pages.
- 1585. Whole-time county health officers, 1933. July 14, 1933. 9 pages.
- 1586. Dermatitis from chemicals used in removing velvet pile. By Louis Schwartz and Louis Tulipan. July 28, 1933. 4 pages.
- 1587. The injection of mosquito sporozoites in malaria therapy. By Bruce Mayne. August 4, 1933. 7 pages.
- 1588. Physical impairment and weight. A study of medical examination records of 3,037 men markedly under or over weight for height and age. By Rollo H. Britten. August 4, 1933. 19 pages.

1589. Zinc in relation to general and industrial hygiene. By Cecil K. Drinker and Lawrence T. Fairhall. August 11, 1933. 7 pages.
1590. Relation of arsenoxide content to toxicity of fresh and old samples of arsphenamine. New chemical tests upon the arsphenamines. By Sanford M. Rosenthal and T. F. Probey. August 11, 1933. 8 pages.
1591. Variations of growth in weight of elementary school children, 1921-28. By Carroll E. Palmer. August 18, 1933. 13 pages.
1592. Estimation of basophilic cells (reticulocytes) by examination of ordinary blood film. By R. R. Jones. August 18, 1933. 10 pages.
1593. Bone marrow in tularaemia. By R. D. Lillie and Edward Francis. September 15, 1933. 10 pages.
1594. Incidence and clinical symptoms of minor respiratory attacks, with special reference to variation with age, sex, and season. By Selwyn D. Collins and Mary Gover. September 22, 1933. 24 pages.
1595. Public Health Service publications. A list of publications issued during the period January-June 1933. September 29, 1933. 4 pages.
1596. Estimation of fluorides in waters. By Elias Elvove. October 6, 1933. 4 pages.
1597. Extent of rural health service in the United States, January 1, 1929-December 31, 1932. October 6, 1933. 17 pages.
1598. Sickness and the economic depression. Preliminary report on illness in families of wage earners in Birmingham, Detroit, and Pittsburgh. By G. St. J. Perrott, Selwyn D. Collins, and Edgar Sydenstricker. October 13, 1933. 14 pages.
1599. Growth and the economic depression. A study of the weight of elementary school children in 1921-27 and in 1933. By Carroll E. Palmer. October 20, 1933. 16 pages.
1600. Encephalitis: Studies on experimental transmission. By Ralph S. Muckenfuss, Charles Armstrong, and H. A. McCordock. November 3, 1933. 2 pages.
1601. Experimental studies of natural purification in polluted waters. VIII. Dissolved oxygen in the presence of organic matter, hypochlorites, and sulphite wastes. By Emery J. Theriault and Paul D. McNamee. November 10, 1933. 15 pages.
1602. Acute response of guinea pigs to vapors of some new commercial organic compounds. VII. Dichloroethyl ether. By H. H. Schrenk, F. A. Patty, and W. P. Yant. November 17, 1933. 10 pages.
1603. Biological products. Establishments licensed for the propagation and sale of viruses, serums, toxins, and analogous products. November 17, 1933. 5 pages.
1604. State and insular health authorities, 1933. Directory, with data as to appropriations and publications. December 22, 1933. 17 pages.
1605. Experimental studies on acute mercurial poisoning. By Sanford M. Rosenthal. December 29, 1933. 18 pages.

Supplements to the Public Health Reports

106. Whooping cough: Its nature and prevention. Information concerning a wide-spread disease for which familiarity has bred contempt. By Floyd C. Turner. 1933. 4 pages.
107. Malaria treatment of parenchymatous syphilis of the central nervous system. By R. A. Vonderlehr. 1933. 70 pages.
- *108. The sanitary privy. 1933. 45 pages. 10 cents.

Public Health Bulletins

205. Lead poisoning in a storage battery plant. By Albert E. Russell, Roy R. Jones, J. J. Bloomfield, Rollo H. Britten, and Lewis R. Thompson. June 1933. 55 pages.
206. The intelligence of the prospective immigrant. I. A study of the mental ability, measured by language and nonlanguage tests, of applicants for immigrant visas at Warsaw, Poland. By J. D. Reichard. July 1933. 35 pages.
207. The health of workers in a textile plant. By Rollo H. Britten, J. J. Bloomfield, and Jennie C. Goddard. July 1933. 26 pages.
208. The health of workers in dusty trades. General statement and summary of findings. By Lewis R. Thompson, Albert E. Russell, and J. J. Bloomfield. III. Exposure to dust in coal mining. By Dean K. Brundage and Elizabeth S. Frasier. (Section on pathology contributed by L. U. Gardner.) IV. Exposure to dust in a textile plant. By J. J. Bloomfield and W. C. Dreessen. V. Exposure to the dusts of a silverware manufacturing plant. By Jennie C. Goddard. VI. Exposure to municipal dust (street cleaners in New York City). By Rollo H. Britten. July 1933. 37 pages.
209. Osteitis deformans. A review of the literature and report of 11 cases. By J. W. Kerr. September 1933. 122 pages.
210. Mortality of coal miners. By Dean K. Brundage. July 1933. 17 pages.

National Institute of Health Bulletin

162. I. The blacktongue (canine pellagra) preventive value of fifteen foodstuffs. By G. A. Wheeler and W. H. Sebrell. II. Pathology of experimental blacktongue. By R. D. Lillie. III. "Yellow liver" of dogs (fatty infiltration) associated with deficient diets. By W. H. Sebrell. IV. The pathology of "yellow liver" of dogs. By R. D. Lillie and W. H. Sebrell. September 1933. 45 pages.

Unnumbered Publications

- Index to Public Health Reports, vol. 48, part 1 (January-June 1933). 24 pages.
- *National Negro Health Week poster. Twentieth annual observance. 1934. Out of print.

Reprints from Venereal Disease Information

42. Cooperative clinical studies in the treatment of syphilis. Arsenical reactions. By H. N. Cole, Joseph E. Moore, Paul A. O'Leary, John H. Stokes, Udo J. Wile, Taliaferro Clark, Thomas Parran, Jr., and Lida J. Usilton. Vol. XIV, no. 8. 28 pages.

DEATHS DURING WEEK ENDED MARCH 31, 1934

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Mar. 31, 1934	Correspond- ing week, 1933
Data from 86 large cities of the United States:		
Total deaths.....	8,867	8,125
Deaths per 1,000 population, annual basis.....	12.4	11.3
Deaths under 1 year of age.....	698	608
Deaths under 1 year of age per 1,000 estimated live births.....	61	52
Deaths per 1,000 population, annual basis, first 13 weeks of year.....	12.7	12.3
Data from industrial insurance companies:		
Policies in force.....	67,693,698	68,658,399
Number of death claims.....	14,079	14,432
Death claims per 1,000 policies in force, annual rate.....	10.8	11.0
Death claims per 1,000 policies, first 13 weeks of year, annual rate.....	11.1	11.2

¹ Data for 81 cities.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended Apr. 7, 1934, and Apr. 8, 1933

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Apr. 7, 1934, and Apr. 8, 1933

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933
New England States:								
Maine.....	1		1	196	14	4	0	0
New Hampshire.....				1	185	5	0	0
Vermont.....	1	2			70	17	0	0
Massachusetts.....	15	7		1	2,622	472	2	2
Rhode Island.....		4			16		0	0
Connecticut.....	3	4		19	23	275	1	0
Middle Atlantic States:								
New York.....	61	94	26	23	1,058	3,977	3	6
New Jersey.....	18	17	15	30	702	2,086	1	2
Pennsylvania.....	67	90			6,371	1,747	4	7
East North Central States:								
Ohio.....	32	29	26	16	1,621	865	1	1
Indiana.....	11	16	15	30	894	119	3	3
Illinois.....	28	22	18	43	1,911	481	11	29
Michigan.....	11	17	3	17	148	1,173	1	2
Wisconsin.....	4	3	84	38	1,429	406	5	1
West North Central States:								
Minnesota.....	4	6			316	1,297	1	0
Iowa.....	6	10	9		258	4	0	4
Missouri.....	45	21	87	9	639	239	4	3
North Dakota.....	3	2	1		106	84	0	0
South Dakota.....	4	2			350	12	1	1
Nebraska.....	6	9	1	35	244	27	1	0
Kansas.....	8	7	11	6	345	349	1	4
South Atlantic States:								
Delaware.....	2	3		1	146	4	1	0
Maryland.....	8	9	11	18	1,680	28	0	1
District of Columbia.....	6	4	1		375	6	0	0
Virginia.....	21	12			2,035	274	4	3
West Virginia.....	14	20	51	14	47	294	1	0
North Carolina.....	19	24	56	22	3,201	636	0	1
South Carolina.....	12	8	500	352	639	229	0	0
Georgia.....	4	10		102	780	84	0	1
Florida.....	18	10	1	1	444	58	0	0

See footnotes at end of table.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended Apr. 7, 1934, and Apr. 8, 1933—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933
East South Central States:								
Kentucky.....	8	10	32	35	668	58	4	2
Tennessee.....	7	13	73	66	878	35	2	2
Alabama.....	11	11	56	43	977	51	0	0
Mississippi.....	8	11					1	0
West South Central States:								
Arkansas.....	5	8	34	12	249	464	0	0
Louisiana.....	19	10	22	15	401	29	0	0
Oklahoma.....	5	1	80	71	439	89	2	10
Texas.....	78	67	445	186	1,492	1,139	2	3
Mountain States:								
Montana.....		1	402	23	46	44	1	0
Idaho.....	1	1	1		62	36	0	0
Wyoming.....					210	6	1	0
Colorado.....	2	3		29	374	4	0	1
New Mexico.....	5	4	6	1	138	8	1	0
Arizona.....	3		27	1	23	32	0	1
Utah.....		1	4	2	440	12	0	1
Pacific States:								
Washington.....	1	10	3	1	153	45	1	0
Oregon.....	1	1	40	29	103	47	0	0
California.....	44	45	34	47	828	1,219	2	4
Total.....	630	659	2,176	1,435	36,362	18,609	63	95

Division and State	Polio-myelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933
New England States:								
Maine.....	0	0	15	23	0	0	31	1
New Hampshire.....	0	0	11	35	0	0	1	0
Vermont.....	0	0	7	12	0	1	0	0
Massachusetts.....	0	0	234	450	0	0	1	2
Rhode Island.....	0	0	2	27	0	0	0	0
Connecticut.....	0	0	77	167	0	0	2	0
Middle Atlantic States:								
New York.....	3	0	835	1,116	0	0	10	6
New Jersey.....	1	0	239	380	0	0	1	3
Pennsylvania.....	2	1	999	990	0	0	6	7
East North Central States:								
Ohio.....	5	1	820	764	1	33	2	6
Indiana.....	1	0	190	190	1	4	3	1
Illinois.....	0	0	532	507	5	5	5	8
Michigan.....	1	3	699	665	0	2	3	2
Wisconsin.....	0	0	189	160	28	1	2	10
West North Central States:								
Minnesota.....	0	0	64	101	8	1	1	0
Iowa.....	0	0	69	55	2	26	0	0
Missouri.....	0	0	117	108	5	14	2	1
North Dakota.....	0	0	45	9	0	1	0	0
South Dakota.....	0	0	6	18	0	2	1	5
Nebraska.....	0	0	38	33	2	2	0	5
Kansas.....	1	0	74	67	2	1	4	1
South Atlantic States:								
Delaware.....	0	0	9	17	0	0	2	0
Maryland.....	0	0	81	120	0	0	6	3
District of Columbia.....	0	0	7	12	0	0	0	0
Virginia.....	0	0	21	61	0	1	3	7
West Virginia.....	1	0	87	25	1	0	3	4
North Carolina.....	0	0	27	53	0	0	0	0
South Carolina.....	0	0	10	16	0	2	5	7
Georgia.....	0	0	7	6	0	1	7	4
Florida.....	2	1	1	3	0	0	8	2

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended Apr. 7, 1934, and Apr. 8, 1933—Continued

Division and State	Polio-myelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933	Week ended Apr. 7, 1934	Week ended Apr. 8, 1933
East South Central States:								
Kentucky.....	0	0	57	64	1	0	2	10
Tennessee.....	0	0	44	25	0	2	4	4
Alabama ¹	0	0	10	5	0	2	1	2
Mississippi ²	2	0	3	16	6	0	8	3
West South Central States:								
Arkansas.....	0	0	5	3	1	53	0	0
Louisiana.....	0	0	25	10	1	0	11	23
Oklahoma ³	0	0	47	13	4	5	1	0
Texas ⁴	2	0	100	73	73	33	6	11
Mountain States:								
Montana ⁵	0	0	9	18	0	2	1	0
Idaho.....	0	0	2	2	1	8	0	0
Wyoming ⁶	0	0	9	11	1	0	0	2
Colorado.....	0	0	33	31	5	10	2	1
New Mexico.....	0	0	13	12	1	2	1	2
Arizona.....	3	0	25	10	0	0	0	0
Utah ⁷	0	0	7	9	0	0	0	0
Pacific States:								
Washington.....	0	0	66	62	9	9	3	1
Oregon ⁸	0	0	20	16	9	4	0	3
California ⁹	6	3	141	161	2	43	7	7
Total.....	30	9	6, 128	6, 725	169	270	153	154

¹ Includes delayed reports.

² New York City only.

³ Week ended earlier than Saturday.

⁴ Typhus fever, week ended Apr. 7, 1934, 16 cases, as follows: Georgia, 2; Alabama 2; Texas, 12.

⁵ Exclusive of Oklahoma City and Tulsa.

⁶ Rocky Mountain spotted fever, week ended Apr. 7, 1934, 9 cases, as follows: Montana, 3; Wyoming, 8; Oregon, 1; California, 2.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week:

State	Me-ningo-coccus-menin-gitis	Diph-theria	Influ-enza	Mal-a-ria	Men-sies	Pel-lag-ra	Polio-my-e-litis	Scarlet fever	Small-pox	Ty-phoid fever
<i>February 1934</i>										
Florida.....	1	23	10	10	503	5	1	12	0	5
Mississippi.....		37	6, 150	1, 454	9, 258	193	5	67	2	8
<i>March 1934</i>										
Connecticut.....	2	24	41		145		0	337	0	4
Delaware.....		7			802		0	48	0	2
District of Columbia.....	1	47	5		2, 708		0	60	0	1
Massachusetts.....	7	64		1	9, 891		2	1, 209	0	3
Nebraska.....	2	35	26		992		2	146	17	6
Wyoming.....					323		0	32	2	0

February 1934		March 1934—Continued		March 1934—Continued	
	Cases		Cases		Cases
Chicken pox:		Conjunctivitis:		Septic sore throat:	
Florida.....	218	Connecticut.....	19	Connecticut.....	12
Mississippi.....	699	Dysentery:		Delaware.....	1
Dysentery:		Connecticut (amoebic)	2	Massachusetts.....	24
Florida.....	2	Massachusetts (amoebic)	6	Nebraska.....	1
Mississippi (amoebic)...	28	Massachusetts (bacillary).....	3	Wyoming.....	5
Hookworm disease:		Nebraska (amoebic).....	1	Tetanus:	
Mississippi.....	207	German measles:		Connecticut.....	1
Lethargic encephalitis:		Connecticut.....	10	Massachusetts.....	2
Florida.....	1	Massachusetts.....	57	Trachoma:	
Mumps:		Wyoming.....	8	Massachusetts.....	3
Florida.....	51	Lead poisoning:		Trichinosis:	
Mississippi.....	457	Connecticut.....	2	Connecticut.....	4
Puerperal septicemia:		Massachusetts.....	3	Massachusetts.....	1
Mississippi.....	25	Lethargic encephalitis:		Typhus fever:	
Rabies in animals:		Connecticut.....	4	Massachusetts.....	1
Mississippi.....	11	District of Columbia.....	1	Undulant fever:	
Trachoma:		Massachusetts.....	5	Connecticut.....	1
Mississippi.....	14	Mumps:		Massachusetts.....	1
Whooping cough:		Connecticut.....	677	Nebraska.....	1
Florida.....	47	Delaware.....	33	Vincent's infection:	
Mississippi.....	1,802	Massachusetts.....	644	Wyoming.....	3
March 1934		Nebraska.....	98	Whooping cough:	
Anthrax:		Ophthalmia neonatorum:		Connecticut.....	277
Delaware.....	1	Massachusetts.....	177	Delaware.....	42
Massachusetts.....	1	Rabies in animals:		District of Columbia.....	187
Chicken pox:		Connecticut.....	5	Massachusetts.....	1,069
Connecticut.....	506	Rocky Mountain spotted fever:		Nebraska.....	207
Delaware.....	55	Wyoming.....	5	Wyoming.....	33
District of Columbia.....	127	Scabies:			
Massachusetts.....	1,004	Wyoming.....	1		
Nebraska.....	283				
Wyoming.....	44				

EPIDEMIC OF TYPHOID FEVER IN AUGUSTA, MAINE

According to a report dated April 7, 1934, there was an epidemic of typhoid fever in Augusta, Maine. The first case occurred on March 26 in the family of a milk distributor. Six additional cases, with two deaths, occurred later in the same family. Sixty-two cases had been reported to date of report.

PLAGUE-INFECTED GROUND SQUIRRELS, KERN AND TULARE COUNTIES, CALIF.

The Director of Public Health of the State of California under date of March 30, 1934, reports the discovery of acute plague in ground squirrels found dead within an area of 6 square miles in Kern and Tulare Counties, Calif., approximately 30 miles north and east of Bakersfield and about 16 miles east of Delano.

Under date of April 9, 1934, he reported that 10 ground squirrels found dead or shot 14 to 18 miles east of Delano, Kern County, and 1 ground squirrel found dead in White River, Tulare County, had been found positive for plague. On April 10, 1934, a lot of 6 ground squirrels from a ranch 10 miles east of Delano, in Kern County, was also found positive for plague.

Positive demonstration was made anatomically and macroscopically, and morphologically characteristic bacilli were found. Cultures for animal inoculation had been prepared.

WEEKLY REPORTS FROM CITIES

City reports for week ended Mar. 31, 1934

[This table summarizes the reports received regularly from a selected list of 121 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference]

State and city	Diph- theria cases	Influenza		Mea- sles cases	Pneu- monia deaths	Scar- let fever cases	Small- pox cases	Tuber- culosis deaths	Ty- phoid fever cases	Whoop- ing cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland	0		0	2	8	2	0	0	0	10	22
New Hampshire:											
Concord	0		0	11	4	0	0	0	0	0	14
Manchester	0		0	3	1	1	0	0	0	0	14
Nashua	0		0	8	0	1	0	0	0	0	
Vermont:											
Barre	0		0	0	1	0	0	0	0	0	3
Burlington	0		0	0	0	6	0	0	0	2	9
Massachusetts:											
Boston	2		0	354	21	68	0	16	0	110	213
Fall River	0		0	0	1	0	0	2	0	6	33
Springfield	0		0	5	2	5	0	0	0	12	46
Worcester	1		0	0	5	5	0	1	0	15	52
Rhode Island:											
Pawtucket	0		0	0	0	3	0	0	0	0	20
Providence	2		0	1	3	6	0	2	0	11	71
Connecticut:											
Bridgeport	0		0	4	6	13	0	4	0	0	43
Hartford	0		0	0	3	15	0	1	0	4	28
New Haven	0	1	0	0	4	3	0	2	0	2	46
New York:											
Buffalo	1		0	178	32	24	0	8	0	31	135
New York	30	24	5	111	190	319	0	81	6	108	1,531
Rochester	1		0	0	3	63	0	2	1	10	72
Syracuse	0		0	4	3	3	0	1	0	45	54
New Jersey:											
Camden	1	1	0	110	6	4	0	1	0	0	45
Newark	0	6	1	7	4	23	0	7	0	36	90
Trenton	0	1	0	65	2	17	0	2	0	11	36
Pennsylvania:											
Philadelphia	6	3	2	932	44	93	0	29	0	74	525
Pittsburgh	11	3	4	165	29	86	0	6	0	28	199
Reading	0		0	3	3	6	0	0	0	6	22
Scranton	0		0	2	0	0	0	0	0	9	
Ohio:											
Cincinnati	6		3	27	10	31	0	6	0	9	149
Cleveland	9	57	2	82	33	148	0	17	0	115	237
Columbus	2	1	1	5	5	85	0	5	0	37	95
Toledo	2	1	0	101	16	17	0	2	0	137	83
Indiana:											
Fort Wayne	4		0	14	0	20	0	0	1	1	24
Indianapolis	0		0	467	11	34	0	0	0	35	
South Bend	0		1	2	1	5	0	0	0	0	23
Terre Haute	0		0	0	0	0	0	2	0	0	14
Illinois:											
Chicago	3	4	4	241	54	260	0	33	0	172	683
Springfield	0		0	271	4	0	0	2	0	13	30
Michigan:											
Detroit	8	3	0	86	45	207	0	17	1	101	273
Flint	2	1	1	11	5	83	0	1	0	9	30
Grand Rapids	0		1	3	2	42	0	0	0	4	40
Wisconsin:											
Kenosha	0		0	3	1	18	0	0	0	6	8
Madison	1		2			9	0	1	0	40	19
Milwaukee	0	2	2	19	11	111	0	3	0	93	99
Racine	0		0	2	0	4	2	0	0	5	12
Superior	0		0	0	0	0	0	0	0	0	8
Minnesota:											
Duluth											
Minneapolis	4		1	10	7	16	0	0	0	4	97
St. Paul	0		0	1	5	6	0	0	0	21	60
Iowa:											
Des Moines	1			0		13	0		0	0	36
Sioux City	1			6		1	0		0	3	
Waterloo	0			0		3	0		0	13	
Missouri:											
Kansas City	2		2	6	28	25	0	7	0	32	125
St. Joseph	3		1	15	16	4	0	2	0	0	57
St. Louis	23		1	92	18	34	4	11	1	65	205

City reports for week ended Mar. 31, 1934—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
North Dakota:											
Fargo.....	0		0	45	0	0	0	0	0	6	6
South Dakota:											
Aberdeen.....	1		0	9	0	3	0	0	0	5	
Sioux Falls.....	0		0	1	0	0	0	0	0	0	7
Nebraska:											
Omaha.....	0		0	136	7	13	3	3	0	2	60
Kansas:											
Topeka.....	0		1	4	3	2	0	0	0	32	24
Wichita.....	0		0	0	5	1	0	2	0	19	40
Delaware:											
Wilmington.....	1		0	65	3	0	0	0	0	2	40
Maryland:											
Baltimore.....	1	5	3	857	30	45	0	13	0	166	220
Cumberland.....	0		1	0	1	3	0	0	0	0	17
Frederick.....											
Dist. of Columbia:											
Washington.....	0	1	0	596	12	16	0	10	0	45	178
Virginia:											
Lynchburg.....	0		0	1	2	0	0	0	0	20	20
Norfolk.....	1		1	76	6	7	0	1	0	8	42
Richmond.....	1		1	305	7	0	0	6	0	6	66
Roanoke.....	1		1	0	0	3	0	1	0	0	15
West Virginia:											
Charleston.....	0	1	1	0	4	0	0	0	2	0	23
Huntington.....	1		0	0	0	18	0	0	0	0	
Wheeling.....	0		0	6	3	5	0	0	1	1	13
North Carolina:											
Raleigh.....	0		0	4	2	3	0	1	0	6	19
Wilmington.....	0		0	3	3	0	0	0	0	7	13
Winston-Salem.....	1	1	0	45	2	0	0	2	0	2	18
South Carolina:											
Charleston.....	1	44	0	30	2	0	0	1	0	1	28
Columbia.....	0		1	0	1	0	0	0	0	0	14
Greenville.....	0		0	2	4	1	0	0	0	5	13
Georgia:											
Atlanta.....	5	7	3	147	17	3	0	5	0	2	117
Brunswick.....	0		0	37	0	0	0	0	3	0	3
Savannah.....	3	42	3	37	1	0	0	0	0	5	57
Florida:											
Miami.....	1	2	0	62	3	0	0	3	2	7	37
Tampa.....	4		0	80	3	1	0	1	0	1	24
Kentucky:											
Ashland.....	0			21		0	0		0	2	
Lexington.....	2	16	0	0	3	2	0	2	1	0	19
Louisville.....	4	2	0	7	11	25	0	5	0	31	90
Tennessee:											
Memphis.....	2		6	181	24	4	0	7	3	1	113
Nashville.....	0		0	37	4	1	0	5	0	15	62
Alabama:											
Birmingham.....	0	1	1	80	3	5	0	5	0	3	68
Mobile.....	2	1	0	18	3	0	0	0	0	1	19
Montgomery.....	2			81		1	0		0	2	
Arkansas:											
Fort Smith.....	1			1		1	0		0	0	
Little Rock.....	0		1	81	5	1	0	3	0	0	16
Louisiana:											
New Orleans.....	10	2	4	43	16	11	0	11	1	0	151
Shreveport.....	0		0	14	1	1	0	2	0	0	33
Texas:											
Dallas.....	8	1	1	5	9	4	1	1	0	4	65
Fort Worth.....	2		0	1	5	10	0	1	0	0	53
Galveston.....	1		0	1	2	5	0	0	0	0	8
Houston.....	1		1	3	10	6	4	5	0	1	76
San Antonio.....	5		3	5	7	4	0	6	0	1	65
Montana:											
Billings.....	0		0	0	0	0	0	0	0	1	0
Great Falls.....	0		0	2	3	1	0	0	0	0	9
Helena.....	0		0	0	0	0	0	0	0	0	4
Missoula.....	0		0	0	2	0	0	0	0	1	5
Idaho:											
Boise.....	0		0	0	0	4	3	0	0	0	6
Colorado:											
Denver.....	2	57	1	132	8	12	0	4	0	163	75
Pueblo.....	0		0	10	3	3	0	0	0	9	8

City reports for week ended Mar. 31, 1934—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
New Mexico:											
Albuquerque.....	2		0	9	2	3	0	2	0	2	10
Utah:											
Salt Lake City..	0		0	184	4	12	0	3	0	29	40
Nevada:											
Reno.....	0		0	0	0	0	0	0	0	0	2
Washington:											
Seattle.....	0			2	6	37	0	7	0	74	87
Spokane.....	0	1	1	28	3	2	0		0	11	36
Tacoma.....	0		0	50	5	0	0	1	0	0	33
Oregon:											
Portland.....	1		0	9	4	7	1	1	0	19	79
Salem.....	0	3	0	0	0	0	0	0	0	1	
California:											
Los Angeles.....	25	26	2	60	16	43	0	32	0	40	316
Sacramento.....	0		0	0	4	2	0	3	0	0	25
San Francisco.....	0	2	0	170	7	23	0	10	0	16	147

State and city	Meningococcus meningitis		Polio-myelitis cases	State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths			Cases	Deaths	
Massachusetts:				Missouri:			
Springfield.....	0	1	0	St. Joseph.....	1	1	0
New York:				St. Louis.....	0	1	0
New York.....	5	3	0	Nebraska:			
Pennsylvania:				Omaha.....	0	1	0
Pittsburgh.....	2	0	0	District of Columbia:			
Ohio:				Washington.....	1	0	0
Cleveland.....	4	1	1	Tennessee:			
Indiana:				Memphis.....	2	0	0
Fort Wayne.....	0	0	1	Washington:			
Indianapolis.....	1	1	0	Seattle.....	0	0	1
Illinois:				California:			
Chicago.....	8	3	0	Los Angeles.....	1	0	0
Michigan:				San Francisco.....	2	0	0
Detroit.....	1	0	1				
Minnesota:							
Minneapolis.....	1	1	1				

Lethargic encephalitis.—Cases: Boston, 1; Springfield, Mass., 1; New York, 1; Trenton, 1; Pittsburgh, 2; Detroit, 1; St. Paul, 1.

Peilagra.—Cases: Raleigh, 1; Charleston, S.C., 3.

Typhus fever.—Cases: Atlanta, 1; Savannah, 1; Los Angeles, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—2 weeks ended March 24, 1934.—During the 2 weeks ended March 24, 1934, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada, as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta ¹	British Columbia	Total
Cerebrospinal meningitis	1		1		3				1	6
Chicken pox		3		206	552	58	28	10	67	924
Diphtheria			3	43	17	11	7	3	1	85
Dysentery				3						3
Erysipelas		1		14	16	3	1		3	38
Influenza		46		10	16	5	10		37	124
Lethargic encephalitis						1	2			3
Measles		7		314	129	856	171	1	56	1,534
Mumps					521	11	23	1	167	663
Paratyphoid fever					3					4
Pneumonia		21			42		4		23	90
Poliomyelitis									2	3
Scarlet fever	2	15	18	170	425	35	3	9	246	923
Smallpox									1	1
Trachoma						1			3	4
Tuberculosis	4	5	10	143	95	6	9	6	45	323
Typhoid fever			3	69	5		4		1	82
Undulant fever		1		1	6		1			9
Whooping cough		20		273	411	17	17	47	30	815

¹ No report was received from Alberta for the week ended Mar. 24, 1934.

Quebec Province—Communicable diseases—2 weeks ended March 24, 1934.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the 2 weeks ended March 24, 1934, as follows:

Disease	Cases	Disease	Cases
Chicken pox	206	Puerperal septicemia	3
Diphtheria	43	Scarlet fever	170
Dysentery	3	Tuberculosis	143
Erysipelas	14	Typhoid fever	69
German measles	30	Undulant fever	1
Influenza	10	Whooping cough	273
Measles	284		

Montreal—Amoebic dysentery.—According to newspaper reports, 21 cases of amoebic dysentery occurred in Montreal, Canada, from July 1933 to March 28, 1934.

CUBA

Provinces—Notifiable diseases—4 weeks ended January 27, 1934.—During the 4 weeks ended January 27, 1934, cases of certain notifiable diseases were reported in the provinces of Cuba, as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Camaguey	Oriente	Total
Cancer.....			1	2			3
Chicken pox.....		1	2	1		2	6
Diphtheria.....	1	1	7	4	2		15
Hookworm disease.....					1		1
Leprosy.....	1			4	2		7
Malaria.....	228	17	399	1,787	64	1,066	3,561
Measles.....	1			4		9	14
Scarlet fever.....						1	1
Tuberculosis.....	13	125	31	69	17	5	260
Typhoid fever.....		4	3	15	3	15	40

CZECHOSLOVAKIA

Communicable diseases—January 1934.—During the month of January 1934, certain communicable diseases were reported in Czechoslovakia, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	3		Paratyphoid fever.....	6	2
Cerebrospinal meningitis.....	7	3	Polio-myelitis.....	4	1
Chicken pox.....	317		Puerperal fever.....	57	22
Diphtheria.....	2,499	177	Scarlet fever.....	2,342	31
Dysentery.....	1		Trachoma.....	111	
Influenza.....	236	5	Typhoid fever.....	380	21
Malaria.....	2				

JAMAICA

Communicable diseases—4 weeks ended March 24, 1934.—During the 4 weeks ended March 24, 1934, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Cerebrospinal meningitis.....	2	1	Leprosy.....		2
Chicken pox.....	5	32	Polio-myelitis.....		2
Diphtheria.....		5	Puerperal fever.....	2	4
Dysentery.....	27	21	Tuberculosis.....	39	89
Erysipelas.....		2	Typhoid fever.....	16	74

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for Mar. 30, 1934, pp. 438-450. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued Apr. 27, 1934, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

CHOLERA

Philippine Islands.—During the week ended April 7, 1934, cholera was reported in the Philippine Islands as follows: Bohol Province—Calape, 1 case, 1 death; Tubigon, 1 case, 1 death. Occidental Negros Province—Escalante, 3 cases, 3 deaths.

PLAGUE

Argentina—Rosario.—During the month of March 1934, 1 case of plague was reported in the suburbs of Rosario, Argentina.

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